

MOBILE BULLETPROOF PERSONNEL SHIELD

1 BACKGROUND OF THE INVENTION

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3 The present invention generally relates to a
4 mobile bullet resistant personnel shield and
5 especially to a hand maneuverable wheeled bullet
6 resistant shield for use by security forces, police,
7 militia and by the military to protect individuals
8 from gunfire.

9 Police and security forces all over the world are
10 confronted with the problem of controlling crowds and
11 demonstrations which at times become violent. The
12 military is faced with protecting military personnel
13 from bullets and shrapnel while in exposed positions.
14 Wars, insurrections, riots, and police actions of
15 various kinds often involve small arms fire and
16 projectiles in which people are often injured or
17 wounded while in an exposed position. Security forces
18 typically have at their disposal helmets, billy
19 sticks, and hand-held protective shields. These have
20 not always been found satisfactory when crowds become
21 very large or exceedingly aggressive and throw
22 objects, such as bottles and stones, and in the face
23 of shots from small arms. Police and militia often
24 also are faced with buildings having one or more
25 individuals having small arms taking refuge in the
26 buildings and are required to cross an open area to
27 approach the building.

28 In the past, there have been a number of designs
29 for portable shields having gun ports and the like
30 which could be used to provide an offensive or
31 defensive stronghold that could accommodate several
32 people and protect such people from gunfire at least
33 from a frontal direction. Some examples of these type

1 of shields can be seen in the following U.S. Patents:
2 Chaires No. 4,245,546; Zevuluni et al., Patent No.
3 4,781,101; Loeser, Jr., Patent No. 2,209,654; Korn,
4 Patent No. 1,308,286; Hack, Patent No. 1,253,964;
5 Wait, Patent No. 4,192,216; Wasylowich, Patent No.
6 1,274,645; Poniatowski, Patent No. 1,267,588; Larnell,
7 Patent No. 1,281,400; and Clark, Patent No. 1,304,541.
8 The invention of ballistic fiber, such as Dupont's
9 Kevlar, made possible modern body armor that is worn
10 by law enforcement officers and military personnel.
11 The lives of more than 2,000 police officers have been
12 saved by wearing soft flexible body armor that covers
13 the torso. Type II body armor is designed to protect
14 against 9mm, .357 magnum, and .45 Auto. Although the
15 layers of fiber are able to prevent most bullets fired
16 from pistols from penetrating, the impact of the
17 projectile causes the fabric to bend inward against
18 the body, creating blunt trauma injuries. Blunt
19 trauma injuries in areas near vital organs can be a
20 serious or even life threatening problem. Body armor
21 designed to protect against higher threat levels, such
22 as 12 gauge rifled slugs and high powered rifles, is
23 very cumbersome and is not worn on a day to day basis
24 by police officers. In addition to this limitation,
25 the body armor usually worn by police officers offers
26 no protection at all for the head, neck, arms and
27 legs.

28 Almost every public building in America complies
29 with handicap access laws. In the event of a
30 terrorist threat or shooting incident, an operator
31 using this shield will be able to rapidly and safely
32 move throughout schools, shopping malls, government
33 buildings or airports using existing wheelchair ramps.

1 It will also be possible to travel in elevators to
2 secure buildings floor by floor. We are not aware of
3 any other design that offers such a high degree of
4 protection and mobility. The handheld shields used by
5 SWAT teams are mobile, but offer no protection from
6 attacks on either side, overhead or from frontal
7 attacks to the legs. Currently, there is a huge gap
8 between these handheld shields, and heavy, massive
9 armored vehicles that can not move through a small
10 alley, a wooded area, between parked cars or enter a
11 building. The shield does not use any type of motor
12 or electronics and so is reliable and requires very
13 little maintenance.

14 The device described herein uses ballistic fabric
15 stretched over a light metal frame on wheels. This
16 arrangement is highly mobile, offers head to toe
17 protection and eliminates the problem of blunt trauma.
18 This design has several distinct advantages. Unlike
19 other designs that employ curved metal, the ballistic
20 fabric covering will not cause bullets to ricochet off
21 the surface, an extremely dangerous situation.
22 Another advantage is that ballistic material is
23 resistant to fire. The shield will provide
24 considerable protection against burning debris.
25 Perhaps most important, the lightweight and large
26 wheels will allow the operator to move at running
27 speed across parking lots, down narrow alleys and even
28 inside buildings, such as shopping malls, schools, and
29 airport terminals. Because there are only two wheels
30 that move independently of each other, the shield has
31 a zero degree turning radius.

32 This invention relates to improvements in mobile
33 shields for protection against gunfire, shrapnel and

1 other projectiles which use a ballistic fabric
2 stretched over a light metal frame and wheels.

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4 SUMMARY OF THE INVENTION

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6 A mobile personnel gunfire shield apparatus has
7 a frame having base, top, front, and side portions.
8 A pair of large wheels are attached to the frame base
9 with a wheel axle. A plurality of sheets of flexible
10 ballistic shield material, such as woven Kevlar, is
11 removably attached to the frame to cover the front and
12 top and at least two sides. A transparent bullet
13 resistant window is mounted to the frame front and one
14 or more bullet resistant windows are added to the top
15 of the frame and surrounded by sheets of flexible
16 ballistic shield material. A movable gun mount is
17 mounted to the frame front adjacent the window mounted
18 therein and has a gun having a barrel removably
19 mounted thereto, such as with a pair of clamps, with
20 the barrel extending through an opening in the front
21 sheet of flexible ballistic shield material. The
22 mobile personnel gunfire shield allows a person to
23 move the gunfire shield while protecting the occupant
24 from gunfire and simultaneously allows the operator to
25 operate a gun from thereinside. A flexible skirt
26 extends below the frame base to protect the wheels and
27 feet of a person therein. The frame also includes a
28 pair of kickstands which holds the gunfire shield in
29 position when positioned. The gun mount may have a
30 plurality of gun mounting clamps thereon for movably
31 clamping a rifle or the like to the gun mount and is
32 mounted on a universal mount for aiming and firing the
33 gun. The operator can use the gun mount to push the

1 gunfire shield while maintaining his position for
2 aiming the gun.

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4 BRIEF DESCRIPTION OF THE DRAWINGS

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6 Other objects, features, and advantages of the
7 present invention will be apparent from the written
8 description and the drawings in which:

9 Figure 1 is a perspective view of a mobile
10 gunfire shield in accordance with the present
11 invention;

12 Figure 2 is a rear sectional view showing the
13 inside of the mobile gunfire shield of Figure 1;

14 Figure 3 is a side sectional view of the mobile
15 shield of Figure 1 having an individual using the
16 shield;

17 Figure 4 is another sectional view of the mobile
18 personnel shield of Figures 1-3; and

19 Figure 5 is a sectional view of the mobile shield
20 of Figures 1-4 in a backward tilted position.

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22 DESCRIPTION OF THE PREFERRED EMBODIMENT

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24 Referring to the drawings Figures 1-5, a mobile
25 personnel gunfire shield 10 is illustrated having a
26 framework 11 which may be formed of any satisfactory
27 material desired, such as steel or aluminum. The
28 frame is supported on large front wheels 12 to allow
29 the frame to be rolled by an individual 13. The frame
30 supports a flexible ballistic shielding material 14 on
31 the sides thereof and shielding material 15 on the
32 front. The shielding material also covers top areas
33 16 and 17. The flexible shielding material can be a

1 woven Kevlar or similar polymer shield material
2 commonly used in bulletproof vests and is loosely
3 attached to the metal frame 11 so that when a
4 projectile, such as a bullet, hits the material 14 and
5 15, the material stops the projectile. The material
6 is spaced from the individual which allows the fabric
7 to move or give during the dissipation of the energy
8 from a projectile. A bulletproof glass or polymer
9 window 20 is also mounted in the shield 10. There is
10 also an angled bulletproof top window 21. The bullet
11 resistant glass 20 can slide horizontally in a metal
12 track without exposing an opening. If there is a
13 direct hit, a small portion of the glass will become
14 opaque, preventing sighting of the gun. The operator
15 can easily slide a clear area in front of the scope.
16 The frame includes a bottom rail 22 along with
17 vertical supporting posts 23 and a top side rail 24.
18 The bottom side rail 22 has a hinge 25 with a hinged
19 bottom rail 26 attached thereto. The hinged rail 26
20 allows the operator to tilt the shield backward in
21 order to shoot up at a target, such as a gunman on the
22 second floor of a building. Bicycle type kickstands
23 29, one on each bottom rail, allow the shield to
24 remain in a level resting position. In the case of a
25 stand-off that lasts for hours, the operator will have
26 his hands free to use binoculars or a two-way radio.
27 In an instant, the shield can be pushed forward,
28 causing the kickstands to snap up against the bottom
29 rail. A pair of axle supporting brackets support a
30 pair of journals 27 which support the axle 28 and the
31 wheels 12. The axle 28 is the balance point of the
32 shield. Weights can be attached to a shelf area
33 between the axle and the front bottom rail to balance

1 the shield. In this way, the back end of the shield
2 will not need to be lifted because it will be
3 perfectly balanced. The wheel support 27 is
4 adjustable to move the wheels and axle up and down to
5 vary the height of the frame by moving the axle in
6 slots 30 within the journal members 27. The frame 11
7 also includes top frame members 31 and front frame
8 members 32.

9 A gun mounting system 33 has a horizontally
10 extending gun supporting bar 34 having a locking ball
11 joint 35 having a locking handle 39 connecting to a
12 push rod support 36. The bar 34 has a push rod handle
13 37 for pushing the entire mobile shield 10 by the
14 occupant 13. A pair of gun supporting brackets 38 are
15 mounted to the gun supporting and push rod bar 34
16 which mounts a gun 40 thereto extending through an
17 opening 41 and which may have an optical telescope 42
18 attached thereto for firing by the occupant 13. Rear
19 supporting frame members 43 support the rear of the
20 mobile shield. The Kevlar or bulletproof shield
21 material 14 and 15 may be extended 44 to just above
22 the surface 45. When the kickstands 29 are down or
23 when the shield is in the extreme backward tilted
24 position, the operator can release the knob 39 and
25 freely move the gun, together with the gun supporting
26 bar 34, without moving the entire shield. For
27 example, the operator could drop to one knee, release
28 the knob 39, and aim the gun at a steep upward angle,
29 or pan the gun from left to right while the shield
30 remains stationary.

31 The mobile shield is shown in Figure 5 at rest
32 having a gun 40 mounted to the gun supports 34 and in
33 Figure 3, an occupant 13 is using the mobile shield 10

1 as he moves forward having visibility through the
2 bulletproof glass window 20 and having the gun
3 extending through the opening 41. The occupant 13
4 lifts the rear of the shield 10 to push the shield on
5 wheels 12. The large wheels are especially effective
6 in moving a large mobile shield and readily move over
7 debris or uneven surfaces. The tires on the wheels
8 may be of a bulletproof nature, such as a solid rubber
9 rather than a balloon tire, even though the wheels are
10 shielded by the bulletproof shielding material 14 and
11 15.

12 The occupant 13 can move in on riots, mobs, armed
13 fugitives or the like and can move into buildings
14 where armed fugitives are holding out and can return
15 fire from one end of the protective shield system 10
16 with the rifle 40. The shield is made lightweight by
17 the use of a frame and polymer shielding material,
18 such as used in bulletproof vests. Being mounted away
19 from the occupant 13 allows space for the flexible
20 shielding material 14 and 15 to give or flex and
21 dissipate energy without harming the occupant 13 as
22 would be the case with a bulletproof vest. The mobile
23 shield 10 is easily loaded onto a vehicle and carried
24 from one site to the next as needed by the police,
25 militia, or military.

26 It should be clear at this time that a mobile
27 personnel shielding device for shielding against small
28 arms fire, shrapnel and other projectiles has been
29 provided which has a metal frame covered with Kevlar
30 or other flexible polymer bullet resistant material
31 and which can be rolled on large wheels. A gun
32 attached to the push rod can be manipulated and fired
33 out of a small opening and there are several plates of

1 bullet resistant glass on the front and sides.
2 However, the present invention should not be construed
3 as limited to the forms shown which are to be
4 considered illustrative rather than restrictive.